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MT Ser, a binary blue subdwarf

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Abstract

We have classified and determined the parameters of the evolved close binary MT Ser. Our moderate-resolution spectra covering various phases of the orbital period were taken with the 6-m telescope of the Special Astrophysical Observatory. The spectra of MT Ser freed from the contribution of the surrounding nebula Abell 41 contained no emission lines due to the reflection effect. The radial velocities measured from lines of different elements showed them to be constant on a time scale corresponding to the orbital period. At the same time, we find effects of broadening for the HeII absorption lines, due to the orbital motion of two hot stars of similar types. As a result, we classify MT Ser as a system with two blue subdwarfs after the common-envelope stage. We estimate the component masses and the distance to the object from the Doppler broadening of the HeII lines. We demonstrate that the age of the ambient nebula, Abell 41, is about 35 000 years. © 2008 Pleiades Publishing, Ltd.

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